

IN THE CLAIMS

Please amend Claim 11, to read as follows.

1. (Previously Presented) A liquid discharge head comprising:
a discharge energy generating element for generating energy for discharging a liquid droplet;
an element base plate provided with said discharge energy generating element on a main surface thereof; and
an orifice base plate bonded to the main surface of said element base plate, being provided with a nozzle having a discharge port portion with a discharge port for discharging the liquid droplet, a bubbling chamber for generating a bubble in liquid therein by said discharge energy generating element, and a supply path for supplying liquid to said bubbling chamber, and a supply chamber for supplying liquid to said nozzle, wherein
said bubbling chamber is formed by a first bubbling chamber communicated with said supply path with the main surface of said element base plate as the bottom face thereof for generating the bubble in liquid therein by said discharge energy generating element, and also, a second bubbling chamber communicated with said first bubbling chamber, and the central axis of the lower face of said second bubbling chamber and the central axis of the upper face of said second bubbling chamber are in agreement in the direction perpendicular to said base plate, and
the sectional area of the upper face with respect to the central axis of said second bubbling chamber is smaller than the sectional area of the lower face with respect to the central axis

of said second bubbling chamber, and the sectional area in the direction toward the central axis is continuously changed from the lower face to the upper face of said second bubbling chamber, and on the circumferential portion of the upper face of said first bubbling chamber in parallel with the main surface of said element base plate, and in contact with the opening communicated with said second bubbling chamber, an extrusion is formed continuously to surround said opening in the direction toward the main face of said element base plate.

2. (Original) A liquid discharge head according to Claim 1, wherein the sectional area of the sidewall face of said second bubbling chamber is continuously changed in the direction toward the central axis from the lower face to the upper face of said second bubbling chamber at an inclination of 10 to 45° to the plane orthogonal to the main surface of said element base plate.

3. (Previously Presented) A liquid discharge head according to Claim 1, wherein said first bubbling chamber is surrounded by a nozzle wall in three directions for partitioning a plurality of said nozzles arranged in parallel condition into each individual nozzle, and a wall face of said discharge port portion is in parallel with the plane orthogonal to the main surface of said element base plate.

4. (Previously Presented) A liquid discharge head according to Claim 1, wherein said first bubbling chamber is surrounded by a nozzle wall in three directions for partitioning a plurality of said nozzles arranged in parallel condition into each individual nozzle, and

a wall face of said discharge port portion is provided with a taper of 10° or less to the plane orthogonal to the main surface of said element base plate.

5. (Original) A liquid discharge head according to Claim 1, wherein the upper face of said supply path on the said supply chamber side in parallel with the main surface of said element base plate is higher than the upper face of said supply path continued on one and the same plane with the upper surface of said first bubbling chamber, and connected with a difference in level, and

the largest height of said supply path from the surface of said element base plate is lower than the height from the surface of said element base plate to the upper face of said second bubbling chamber.

6. (Original) A liquid discharge head according to Claim 1, wherein at least in a part of said supply path, the width of said supply path on the plane orthogonal to the flow direction of liquid is changed in the thickness direction of said orifice base plate.

7. (Original) A liquid discharge head according to Claim 1, wherein the sectional area of said nozzle from said discharge port to said supply chamber is further structured to be changed by plural differences in level.

8. (Previously Presented) A liquid discharge head according to Claim 1, wherein said nozzle is formed so as to orthogonalize the discharge direction of flying droplets from said discharge port and the flowing direction of liquid flowing in said supply path.

9. (Original) A liquid discharge head according to Claim 1, wherein said nozzle is formed so as to make the total sum of the volumes of said first bubbling chamber, the second bubbling chamber, and the discharge port portion smaller than the volume of said supply path.

10. (Previously Presented) A liquid discharge head according to Claim 1, wherein the bubble generated by said discharge energy generating element is communicated with the air outside at the time of discharging the liquid droplet.

11. (Currently Amended) A liquid discharge head according to Claim 1, wherein said orifice base plate is provided with plural nozzles corresponding to plural discharge energy generating elements, respectively, and said plural nozzles are divided into a first nozzle array having the longitudinal direction of each nozzle arranged in parallel, and a second nozzle array having the longitudinal direction of each nozzle arranged in parallel in the position facing said first nozzle array with said supply chamber between them, and

the center line of each of said nozzles in said second nozzle array is arranged so as to be displaced by 1/2 pitch between each of adjacent nozzles with respect to the center line in the longitudinal direction of each of said nozzles of said first nozzle array.

12-14. (Cancelled)